

ABSTRACT

The invention relates to a new type of deep well pump apparatus, especially a numerically controlled reciprocating submersible pump apparatus having a drive integrated with a pump freely adjusting parameters online any time. The whole apparatus, including a balancing sieve tube, a drive and a pump, is submersed in underground oil reservoirs. The drive consists of a stator with an airtight cavity and a reciprocating head with iron cores inside the stator. The stator and the reciprocating head form a friction couple via the supporting guides and the reciprocating head iron cores. The stator's upper end is connected to the pump's lower end through the sieve tube. An oil tube is connected to the pump. The stator's lower end is connected to the balancing sieve tube, end plug and end coupler serially. The invention is a combination of the drive and the pump, adjusting working parameters online any time, eliminating the nodding donkey and rods, reducing installation time and cost, saving large investment, energy and avoiding many disadvantages of the traditional oil extraction equipment.